

4.5 Exercises

Basic Concepts

1. When analyzing grouped data, are the measurements exact? Why or why not?
2. What calculations are required in order to analyze grouped data?

Exercises

3. A client of a commercial rose grower has been keeping records on the shelf-life of a rose. The client sent the frequency distribution to the grower. Determine the sample mean and sample variance for the shelf-life given the following frequency distribution.

Rose Shelf-Life	
Days of Shelf-Life	Frequency
1 – 6	2
7 – 12	3
13 – 18	9
19 – 24	6
25 – 30	3
31 – 36	1

4. A frequency distribution of Alcohol by Volume (ABV) for the Beers and Breweries data set from the companion website is shown below. Use the frequency distribution to perform the following.

ABV Frequencies	
ABV	Frequency
0.0010 – 0.017	1
0.0175 – 0.033	6
0.0335 – 0.049	402
0.0495 – 0.065	1228
0.0655 – 0.081	565
0.0815 – 0.097	146
0.0975 – 0.113	45
0.1135 – 0.129	3

- a. Compute the population mean ABV of all beers based on the frequency distribution. Round your answer to three decimal places.
- b. Compute the population variance of the ABVs of the different beers based on the frequency distribution. Round your answer to four decimal places.
- c. Compute the population standard deviation of the ABVs of the different beers based on the frequency distribution. Round your answer to three decimal places.

Data

Discovering Statistics and Data,
Fourth Edition > Data Sets > Beers
and Breweries

5. An article in Business Week discussed the large spread between the federal funds rate and the average credit card rate. The table below is a frequency distribution of the credit card rate charged by the top 100 issuers. Note that at the time these figures were published, the average federal funds rate was well below 5%.

Credit Card Rates	
Credit Card Rate	Frequency
19% – 24%	36
18% – 18.9%	8
17% – 17.9%	15
16% – 16.9%	12
15% – 15.9%	29

- Determine the sample mean of the credit card rate charged by the top 100 issuers based on the frequency distribution.
 - Determine the sample variance of the credit card rate charged by the top 100 issuers based on the frequency distribution.
 - Determine the sample standard deviation of the credit card rate charged by the top 100 issuers based on the frequency distribution.
6. The frequency distribution for the response time (in minutes) for EMTs after a 911 call is shown below. Calculate the population mean and variance for the response time.

Response Time for EMTs	
Time (in minutes)	Frequency
7.0 – 7.9	16
8.0 – 8.9	25
9.0 – 9.9	38
10.0 – 10.9	43
11.0 – 11.9	33
12.0 – 12.9	19